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Neglect of Engineering to End, NSF Pledges

One step ahead of its Congressional critics, the National Science Foundation has responded to charges of neglect of engineering by throwing together plans to put more emphasis on the subject.

The plans, now in an advanced stage of bureaucratic approval, are the latest in two decades of maneuvers to calm NSF's critics in high-technology industry and the applied-science precincts of academe. Up to the present, little of substance has actually occurred, despite numerous additions to NSF's collection of abbreviations and acronyms. But this time, there may be some real changes, because of the "reindustrialization" fad

Senate Confirms Slaughter To Head Foundation—Page 3

and the presence of researchers with applied science interests high in the NSF hierarchy.

The reorganization plan was prepared under the guidance of NSF Acting Director Donald Langenberg, a solid-state physicist with basic and applied research experience. It may be assumed that the plans have been gone over by John Slaughter, the Director designate (an applied physicist), whose appointment just became unstuck in the Senate. And the NSF body that will have to give final approval, the National Science Board, is chaired by Lewis Branscomb, a meteorologist who headed the National Bureau of Standards until 1972, when he became Chief Scientist of IBM.

If approved by the Board, which seems likely, the new arrangements are to be included in the NSF's budget request for 1982, already submitted in draft form to the Office of Management and Budget on September 15, but open to change up to December.

Skeptics both within and outside the Foundation are looking warily at the new plans, conscious of the virtually continuous process of futile reshuffling which, over nearly a decade, turned the Research Applied to National Needs (RANN) project into the Applied Science and Research Applications (ASRA) directorate, and subsequently into the present directorate for Engineering and Applied Science.

But top NSF officials are hoping that, by giving engineering greater visibility within the Foundation — if the re-organization goes ahead, engineering research is expected to be given a major boost in the 1982 budget request — they can head off criticism of past efforts. Engineering science has often been treated as a poor

relation of more "fundamental" disciplines in the funding stakes, even though it shares the same status as physical and biological sciences in the NSF's authorizing legislation.

A particular source of concern has been the proposal of Rep. George E. Brown Jr. (D-Cal), chairman of the House Science and Technology Committee's Science, Research, and Technology Subcommittee, to set up a National Technology Foundation. This would operate in parallel with the NSF — indeed the two organizations would share some overlapping directorates. But it would be given specific responsibility for the health of technology education and research, and studies in technology policy.

Brown says that, although he has introduced a bill in-
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In Brief

Frank Press, retiring White House science adviser, appears to be a shoo-in in the Soviet-style presidential election that's coming up at the National Academy of Sciences. The nominating committee comes up with one candidate, and though members may propose an alternative, that's succeeded only once in the Academy's 116-year history.

A weary Senate, eager to get home for campaigning, voted 38-35, with 27 not voting, on September 22, against a provision to exempt R&D from a 2 per cent across-the-board spending cut for the Department of Housing and Urban Development, NSF, NASA, and several others. Leading the fight to apply the cut was Senator William Proxmire, who argued that the agencies wouldn't miss the two per cent, while the Treasury would welcome the estimated \$140 million it would save.

The Petty Press: For the first time since the Carter Administration took office, SGR has not been invited to a news briefing of the Office of Science and Technology Policy — one that was held last month on the eve of Director Frank Press's departure for Africa. The non-invitation followed SGR's critical accounts of the Administration's shell-game tactics with the R&D budget. Also, an OSTP aide recently protested SGR's account of the recruiting of John Slaughter for the directorship of NSF, but when invited to put his complaint in writing for publication, quickly dropped the matter.

... Complaints of Second-Class Status at NSF

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to the House describing his plans for a National Technology Foundation (NTF), this has primarily been to provide a vehicle for public discussion of different ways of organizing technology research — with attention firmly on the experience of countries such as Japan and West Germany. The bill is likely to be substantially rewritten before being re-introduced in the next Congress, and staff aides say that ideas are currently fairly fluid.

However, the public hearings which Brown's subcommittee held in September provided ample opportunity for both academic and industrial engineers to air their complaints about what was claimed to be a lack of federal support for engineering, especially outside the areas of defense and space research, which have been relatively well treated by the Department of Defense and the National Aeronautics and Space Administration.

Engineers have always felt — often with some justification — that they are treated as second-class citizens by the basic research community. And what appears to be an imminent shortage of engineers in the civilian sector, aggravated by the expected demands of the massive synthetic fuels plant construction program which the federal government has agreed to finance as part of its \$20 billion, four-year program, is adding to their demands for better treatment.

Reflecting these various demands, a number of professional engineering societies have recently been passing resolutions at their annual meeting expressing their current frustrations, and suggesting ways that these might be met. No one proposal has overwhelming support, but in addition to support for Brown's idea of an NTF, others are pushing for a single National Science and Engineering Foundation — or failing that, for a National Engineering Foundation.

With the criticisms from engineers entering one ear, and exhortations from Congress and the White House about the need to improve productivity and rekindle industrial innovation in the other, NSF officials hope that they can produce an organizational arrangement that will keep both science and engineering under the same roof, while refuting charges that they are selling out to

the one or the other.

Details of the proposed changes were described in a discussion paper which Acting Director Langenberg distributed two weeks ago at a public meeting held in Washington of representatives of the Foundation's various advisory councils — the first time many of these bodies, whose primary responsibility is to oversee the health of the twenty-odd research divisions of the Foundation, had been involved in this type of policy discussion.

Criticizing the tendency to associate applied science exclusively with engineering — a tendency which is reinforced by the current combination of the two in a single directorate — the paper says that the Foundation recognizes that the *profession* of engineering is concerned with the application of scientific knowledge to the production of goods and services "for the public benefit." However, it adds that NSF believes engineering research encompasses activities which range from the basic to applied sciences and that "It follows that the fundamental structure of the Foundation ought to provide for the support of engineering research, from basic to applied, under exactly the same conditions as it does in any other group of disciplines."

Langenberg and Jack Sanderson, the current head of the Engineering and Applied Science directorate, used the meeting to describe the thinking behind the changes that they have in mind. Langenberg stressed that, although in itself the reorganization would not require additional budget commitments, "the potential for the success of engineering in competition for funding may be enhanced by its status as a separate directorate."

Sanderson said that engineering "has to be conceived as a broadly based responsibility" by the Foundation, and he talked about NSF taking the lead in "ensuring the general health of engineering in the same way that we currently have a responsibility for the overall health of science."

The meeting heard some strong criticism of the lack of support which the Foundation has provided for engineering in the past. Karl Willenbrock, Dean of the School of Engineering and Applied Science at Southern

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... New NSF Role for the Social Sciences?

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Methodist University, described many engineers as having a "turned off" feeling about the Foundation, claiming that "I could get five anti-NSF resolutions passed any day of the week" at professional engineering meetings. "Unless there is change in attitude by the Foundation that is more than cosmetic, engineers will push for anything that comes along — including Mr. Brown's National Technology Foundation, if necessary," Willenbrock warned.

Langenberg insisted that both the Foundation and the National Science Board had been trying for several years to put engineering research at the top of the agenda for increased funding. But until recently, he said, it had been difficult to convince Congress to go along with these increases.

Related to the question of what to do about engineering is how to handle applied science. Under the proposed reorganization, attempts would be made to blur what Langenberg referred to as an "unproductive" distinction between basic and applied science; specifically this would be done by giving each directorate responsibility for determining what it feels to be the appropriate balance between basic and applied research within its discipline.

"All research is potentially applicable; it is only a question of the time-scale on which applications can be anticipated," said the discussion document for the meeting, raising a familiar argument that tends to go down better in university faculty meetings than it does with Congressional committees.

Both the National Science Board and, in general, the scientists attending the open meeting expressed their approval of the reorganization suggestions. Most controversial is likely to be not the plans for engineering research, but the proposal to create a new Social Science Directorate.

Currently, the social sciences are grouped with the biological and behavioral sciences. One suggestion calls for a split, with a separate Social Science Directorate taking responsibility for the social and economic sciences, behavioral and neural sciences, plus the applied social science programs now in the division of applied research.

Social scientists both within and outside the Foundation are split over this proposal. On the one hand it would probably give the social sciences greater academic status, and enhance their capability to compete with other disciplines for support. But two reservations have been raised. The first is that the social sciences would be organizationally split from biology at a time when, particularly in fields such as nutrition and physical and

social anthropology, the two disciplines are moving closer together. The second reservation is based on the historical experience that social science research programs have traditionally been an easy target for Congressional budget sniping — further cuts were again sustained this year in a budget amendment by Rep. John Ashbrook (R-Ohio) during House debate on the NSF authorization bill. The fear is that an exclusive directorate would make the social sciences even more vulnerable than before.

The next step in the evolution of NSF will come October 16, when the reorganization proposal comes before the National Science Board. Approval is expected, but whether the proposed shifts will suffice to satisfy the critics is far from certain.

Senate Confirms NSF Director

John Slaughter's nomination as Director of the National Science Foundation was unanimously confirmed by the Senate on September 24, thus ending an election-year impasse that was making science-policy officials very uneasy (SGR Vol. X, Nos. 14-15).

Slaughter, a former NSF Assistant Director who is now Provost of Washington State University, got caught up in a Republican scheme to block fixed-term presidential appointments at this late stage of the presidential term. The NSF directorship, with its six-year term, has, with a brief Nixon-era exception, been considered a non-political appointment, and the science mandarins were getting concerned about this turn of events. Further complicating the issue is the fact that Slaughter is the first black to be appointed to the directorship in NSF's 30-year existence. A turndown could invite nasty interpretations, even if they were groundless.

In any case, the Republicans decided to relent as far as this appointment was concerned, and confirmation followed swiftly. Still to be determined is when Slaughter will report to work — he stayed on at his Pullman, Washington, academic post while the politicians maneuvered. A swearing-in ceremony also remains to be scheduled.

Correction

SGR (Vol. X, No. 14) erred in stating that the Republican minority on the Senate Labor and Human Resources Committee was not notified of the meeting at which Slaughter's nomination was originally approved by an all-Democratic quorum. The Republicans were notified, but chose not to attend.

Senators Assail White House Science Adviser

Frank Press, the White House science adviser, is finishing out his presidential service under a barrage of Congressional criticism that is perhaps unprecedented in the long history of the job he fills.

While most of the fireworks directed at him are inspired by substantive matters, Capitol Hill's science legislators often express bitter personal remarks about Press — accusing him of servile devotion to the White House political gang, as well as not leveling with his Congressional overseers on legislative matters. Press, for his part, puts on a public show of seeking to cooperate with the members and committees that have jurisdiction over research and development and related matters. But he is reliably reported to have expressed a good deal of contempt for Congressional intrusions into R&D affairs, and he apparently shares the view that Congress is overstaffed with eager, upward-bound professionals — lawyers, economists, administrators of one sort or another — who want to make a mark during a couple of years' service, before moving on to more lucrative ground.

The latest clash between Press and members of Congress came September 19, when the Senate Subcommittee on Science, Technology, and Space, chaired by Adlai E. Stevenson (D-Ill), held oversight hearings on the Office of Science and Technology Policy (OSTP), of which Press is Director. (SGR Vol. X, No. 15 reported on a highly critical review of OSTP that the General Accounting Office prepared as background for the hearing).

Following an exchange of cordial greetings between Press and the presiding Stevenson, the science adviser offered a lengthy, highly detailed statement, the net effect of which was to suggest that the Carter Administration is a nirvana for the scientific community — with Frank Press serving as the bishop in charge. Then came the Senatorial counterfire, with Stevenson derisively remarking that, despite favorable words from Carter and Press regarding science budgets, "I don't find that commitment reflected in the figures." Stevenson added that "I grant you, we have had so many budgets and so many economic proposals in short succession that it is a little hard to follow all these figures."

Stevenson then noted that Carter's most recently announced plan (SGR Vol. X, No. 15) made it appear that more money was going into R&D, "But if I am correct, that recommendation of a \$300-million increase for each of these years [Fiscal 1981-82] follows a decrease of \$900 million in the revised '81 budget. He is only restoring a part of an earlier cut."

Press replied: "The new funding in the President's economic message will permit an increase in the support of basic research over the four-year budget period in

which this Administration has been in office of 11 per cent real growth above inflation."

Stevenson then referred to the annual R&D budget analysis prepared by the American Association for the Advancement of Science, and observed that it reported a 2.4 per cent increase for each of fiscal years 1979-81. "... I think it would take a mathematical magician to produce from 2.4, 2.4, 2.4, a real increase of 11 per cent over those four years," Stevenson remarked.

At that point, Senator Harrison Schmitt (R-New Mexico), saying he had to leave the hearing, told Press, "My concerns are directed more at the Administration rather than at you, Frank. But I do think you have tried to put the best face on what I do not think is a good record in science and technology by this Administration. Maybe we made some progress," said Schmitt, a Ph.D. geologist and former moonwalking astronaut, "but I think it is in spite of the Administration rather than because of it. . . . Most of the areas where you have indicated the Administration has a policy. . . I would not say they have a policy worth the name," Schmitt said, adding:

"Maybe my greatest concern is that there seems to be a contempt for the legislative process on the part of the Administration. In these areas where the Congress. . . including members of this Committee, have proposed policy initiatives, we have generally been opposed. And where we have opposed the Administration. . . there have been strong efforts to end run the Congressional process."

Press, in response to charges of inadequate budgets for space activities, said that the biggest cutters were on Capitol Hill — to which Stevenson replied that if the Administration would develop a longrange space policy, the Congress might feel more cooperative.

Replied Press: "I really can't agree that we have no space policy, that we have no long-term objectives. . . . There may be a policy difference between you and the Administration as to how much we should do, but we do feel that we have a program for our plans in space."

Referring to an operational remote-sensing system for civilian purposes — long pushed by Stevenson and Schmitt — Press said that the program had been converted from R&D to an operational system.

Stevenson: That is also a slight overstatement.

Press: In what way?

Stevenson: . . . There hasn't been a significant change except for some organizational change. We have been pushing, holding hearings. In fact, I thought we had an agreement to fund the first stage of an operational remote-sensing system. But we can't go through with it now, because it's not there.

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... Press Denies OSTP Fails to Cooperate

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Turning to the Five-Year Outlook report which Congress mandated for preparation by OSTP, Stevenson noted that, by executive order, the chore was reassigned to the National Science Foundation. Stevenson sympathetically acknowledged that Press's office is "overworked," but added that "we are really not asking you to prepare the whole report. It is just the overview, with the suggestion that your office is a more appropriate office for expressing government policy than the NSF."

Press: I am hoping you are not implying that our office is secretive and doesn't communicate. I have said in my Congressional testimony, in the science and technology message, [that in] my personal discussions in the offices of Congressmen and Senators, I think I have spent more time than all my predecessors combined.

Stevenson: You are protesting too much. I was not suggesting that... I wasn't trying to be critical, Dr. Press. I think you have done an extraordinary job... We have an instinct for creating adversarial relationships where they shouldn't be, and sometimes for appearances that belie the reality.

The next witness, Harvey Averch, Assistant Director for Scientific, Technological, and International Affairs, at the National Science Foundation, said NSF was a suitable place for preparing the Outlook report and a companion annual report.

Stevenson asked whether NSF had the necessary resources; Averch's response provided a glimpse of the make-believe tactics that the present, as well as previous, administrations employ to navigate around the politically sensitive issue of the size of the federal payroll.

"Well, every agency is staff-limited," Averch said, "and these reports are particularly staff intensive. We have requested some additional staff from OMB to prepare the two reports, and we are optimistic on getting the staff. I think the staff constraint is perhaps more important than the dollar constraint."

Stevenson: If you have the money why can't you get the people?

Averch: The OMB is more sensitive, in a sense, about people than dollars. We have used the regular NSF allocation to put in whatever dollars are necessary. We labor under the general agency manpower ceiling, and, of course, my own directorate has a sub-ceiling. And everybody fights about manpower.

The hearing concluded with Schmitt — a strong supporter of Ronald Reagan and the presidential candidate's notion that government is the source of the nation's energy problems — wildly tub-thumping on a variety of issues:

"...it is very difficult for the Congress to work in

Agencies to Keep USSR Ties

Federal agencies that were told to throttle back on research dealings with the Soviets in the post-Afghanistan chill were quietly reminded recently that it's okay to maintain a minimum of contacts.

The original cutoff instructions allowed the continuation of important scientific, humane, and low-level administrative contacts. The State Department and the White House Science Office, concerned about losing all contacts with the Soviet research establishment, have put out the word that working-level meetings for planning those activities that are still permissible should go ahead without interruption.

Most federal research administrators share a generally low opinion of Soviet R&D, but they like to know what's going on there, and have been complaining that the White House's anti-contact policies are working to the US's detriment. The White House isn't ready to relent, but — as evidenced by the instructions to keep in touch — wants to keep the lines open.

Meanwhile, in academe, the Soviet-American chill has advanced to the point where once-common Soviet visitors at university laboratories are now a rarity.

policy areas when the Administration comes forward everytime they testify and says everything is rosy. "We are working on all the problems. We have a policy for everything. And don't worry about it. We will take care of it," Schmitt declared in mockery of testimony by Press and others.

"Any anytime Senator Stevenson or I or anybody else comes with a suggestion that we may need a real policy in some area," Schmitt continued, "they fight us at every turn of the road... Cooperation in the legislative and policymaking process is a two-way street, and you can't have an administration that deals with the Congress with what at least this Senator believes is contempt in the policymaking area. We have gotten nowhere with any significant policy activities in the kinds of areas that we are talking about today. And every time some proposal is made, it is rejected by the Administration."

Stevenson, who is retiring from the Senate at the end of this term, softened his colleague's blows by saying, "All administrations share that contempt for this institution, and I have to say it is not entirely unwarranted."

With that, the hearing swiftly proceeded to an end.

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United Lobbying Produces for Academic Groups

Most university lobbyists are delighted with the compromise higher-education bill that is about to emerge from Congress.

They are pleased not only with the \$48.6 billion worth of federal aid, reauthorized for the next five years, but also by the way the associations representing the different sectors of private and public higher education, from research universities to community colleges, managed to stick together throughout the lengthy lobbying process.

The coalition almost blew apart on several occasions, including when the National Association of Independent Colleges and Universities (NAICU) and the American Association of State Colleges and Universities thought the student aid programs were evolving in a way that favored the other group. NAICU President John Phillips had a particularly hard time whipping some of his member institutions into line after House-Senate conferees agreed to let basic grants increase from 50 to 70 per cent of the student's costs of attendance — which would clearly benefit low-cost public institutions at the expense of small private colleges.

However, by remaining united to the end, the higher-education lobby had no trouble rewriting the legislation along the lines it wanted. The Carter administration did present some poorly prepared proposals to streamline

and slim down the federal grant and loan programs, but the federal education bureaucracy was in such chaos between the firing of Joseph Califano as HEW secretary 15 months ago and the opening of the Education Department in May that its ideas were mostly ignored. The five-year reauthorization process would have been an ideal opportunity to redesign the present jerry-built system, which is cumbersome, confusing and irrational; but every component of it was designed to please one constituency or another, and the university and college associations could maintain their united front only by going for expansion, not reform.

Although 90 per cent of the sums authorized are for general aid to students, there are a lot of other goodies in the legislation, among them an innovation which particularly pleases the research universities — a national graduate fellowship in the social sciences, arts, and humanities.

This program, based on a proposal by Princeton University lobbyists Robert Durkee and Nan Wells, is designed to provide graduate students in these fields with the sort of support their counterparts in the natural sciences and engineering already receive from the National Institutes of Health and the National Science Foundation. Private sources of funds for non-scientific graduate work, such as the Ford and Danforth foundations, have dried up.

Congress authorized 450 national graduate fellowships a year. Fellows will be selected on merit but their stipends will be related to financial need. A new fellowship board will define the eligible subject areas and appoint a panel in each field to select the fellows.

Title II, which deals with libraries, is another area of great interest to academic researchers. College and public libraries will be eligible for "resources development grants" up to \$10,000 each; the present maximum is \$5,000. In addition, the authorization for the program to strengthen research library resources is increased from \$10 million in 1981 to \$15 million in 1982.

The House had also authorized \$15 million to establish a National Periodical Center that would give libraries access to a national bank of periodicals. But the conference committee adopted the more cautious Senate approach, under which a nonprofit corporation will be set up to investigate the merits of a National Periodical System. After the two-year study is complete, Congress will decide whether to go ahead with the periodical center (which university librarians maintain is needed urgently).

Title VII, which authorizes federal aid for the construction and renovation of academic facilities, is broadened. Congress can now appropriate funds to im-

OSTP (Continued from Page 5)

Press plans to resign at the end of the year, regardless of the outcome of the election, and, therefore, will be released from the dingy task of defending Carter's R&D policies on Capitol Hill. But his successor, whoever controls the White House, will inherit a legacy of powerful legislative distrust and animosity regarding the White House science office. Despite the sweet talk that concluded this hearing, there are influential members who assign a high priority to making OSTP behave as Congress legislated it should in 1974. That legislation was unilaterally cut down by Jimmy Carter, and Congress accepted the move, on the grounds that the President knows best about his own staff arrangements.

The issue, as it has developed, however, no longer merely concerns presidential housekeeping arrangements. The members of Congress concerned with R&D want a policy, so they can hold the Administration to a timetable for programs and spending, and in general, they'd like to see more money going into R&D.

But most of all, as Schmitt said, they want to be treated as co-equals in R&D policymaking. And that's something that Carter, with his sanctimonious contempt for anyone who falls short of reverence for him and his preferences, finds difficult to accept. — DSG

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News Notes: Ethics, Prizes, DOE, Aging

Ethical and social aspects of genetic engineering are going to be studied by the President's Commission for the Study of Ethical Problems in Medicine and Biomedical and Behavioral Research. But agricultural and ecological issues have been set aside by the Commission as not requiring its attention, and the same goes for potential hazards of recombinant DNA research and industrial products.

This agenda was announced by the Commission last month, following a request that the White House passed along from the National Council of Churches, the Synagogue Council of America, and the United States Catholic Conference. What was bothering them, they said, was that "no government agency or committee is currently exercising adequate oversight or control, nor addressing the fundamental ethical questions" of genetic engineering. The White House told the Commission to look into it, and the Commission, after hearing testimony from an assortment of specialists and government officials, announced it would conduct a study and report by early 1981.

Walter L. Gillespie, Deputy Assistant Director for Science Education at the National Science Foundation, has been presented a Distinguished Executive Award by President Carter; with the honor comes \$20,000, a one-time bonus authorized for outstanding federal employees in Civil Service reforms enacted last year. Gillespie joined NSF in 1966. He was one of 49 members of the new Senior Executive Service (SES) who received the award this year. Meritorious awards, carrying \$10,000 stipends, were also announced for 206 members of the SES, 18 at the Department of Energy.

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prove research facilities, in addition to making campuses more energy efficient and more accessible to the handicapped. But universities do not plan to use this new authority to press for Education Department funds to upgrade laboratories and research facilities — or at least not for now.

"One of the problems is that there are parts of Title VII that other parts of the higher education community want more urgently," explained a university lobbyist. The NSF is already authorized to improve research facilities and it, not the Education Department, is the channel from which the universities are expecting \$120 million — half-promised by Frank Press in an August 28 news briefing — to flow during 1981 and 1982.

The House-Senate action deals only with authorizations. The actual amount of money for each of these

items will be provided through a separate appropriations bill; since the legislative term is nearly at an end, that means that it won't be until about a year from now — if then — that money for these measures will be put into the pipeline. — C. C.

Frank D. DeGeorge, Deputy Chief Financial Officer for Internal Management in the Department of Energy, has been named to the new position of Deputy Assistant Secretary for Conservation and Solar Energy. Formerly a Deputy Commissioner of Social Security, DeGeorge will be in charge of day-to-day management of the conservation and solar staff programs.

The National Institute of Aging has announced publication of a book intended "to reach small children with new and positive images of older people." Titled, *A Treasure Hunt*, the 31-page book was written by Christopher Wilson and illustrated by his wife, Dagmar Wilson; both have published previous works for children. Single copies are available without charge from: NIA/Expand Associates, Inc., 8630 Fenton St., Suite 508, Silver Spring, Md. 20910.

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Anderson Pledges Strong Support for R&D

The following, from the Anderson-Lucey Platform, completes SGR's presentation of the science and technology planks of the major presidential candidates this year (SGR Vol. X, Nos. 14-15).

The Anderson plank is by far the most detailed, reflecting, quite likely, the independent candidate's need to explain himself to a party-oriented electorate. The specific steps recommended by Anderson are preceded here by excerpts from an introductory section in the platform titled, "Research and Development":

...Total U.S. research and development spending as a percent of the gross national product...has fallen by nearly 50 per cent in the past 15 years. We are in danger of losing our technological edge.

Declining technological growth has real consequences for all Americans. Technological improvements account for 40 to 70 per cent of productivity growth. We all benefit from rising productivity in the form of increased purchasing power and higher real incomes. It is more than coincidence that our declining rate of productivity growth was preceded by an equally serious decline in our research and development effort.

To revive our flagging R&D effort, we propose a number of new initiatives and program improvements. An Anderson Administration will seek to:

- reverse the decline in the real dollar level of federal funding for research and development;
- provide a 10 per cent investment tax credit for qualifying research and development expenditures;
- establish a federal program to re-equip the laboratories of our universities, our non-profit research centers, and our government facilities;
- redefine the working relationship between government and universities so as to avoid the substitution of paperwork for genuine creativity;
- provide fixed objectives and more predictable project funding for scientists and engineers on the cutting edge of technology;
- establish regional technology centers under the aegis of the National Science Foundation and NASA to lower the costs of selling and licensing new technologies to private business;
- establish a more uniform patent policy for all federal agencies;
- require federal agencies to determine in an expeditious manner whether they will retain the patent on inventions developed by private contractors with federal monies;
- reorganize and increase the funding of the Patent and Trademark Office to improve its operations and handling of patent requests;
- explore the possibility of creating a separate patent court to reduce the time needed to establish the validity of a patent.

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